

What is Claimed is:

1. A method of downloading or uploading data via a client-server communications network that includes a server and a plurality of clients, each client having a local cache storing data downloaded via the network, the method comprising:

a requesting client broadcasting a data request over the network to the server and/or one or more other clients or connecting to at least one client whose address is on a proxy list held by the requesting client; and

the requesting client then downloading the requested data across the network from the cache of a proxy server client that is caching the requested data.

2. The method of Claim 1, wherein the network comprises the Internet, the clients comprise user terminals running web browsers, and the respective local caches are associated with the browsers on the user terminals.

3. The method of Claim 1, wherein the requesting client chooses from a plurality of proxy server clients the proxy server client from which it will download the requested data.

4. The method of Claim 1, wherein the proxy list contains the respective addresses of the plurality of proxy server clients.

5. The method of Claim 4, wherein the proxy list also contains the address of the server.

6. The method of Claim 1, wherein the requesting client assesses the speed of at least one connection to an address in the proxy list.

7. The method of Claim 6, wherein the requesting client assesses the speed of the connection by pinging the associated address taken from the proxy list.

8. The method of Claim 6, wherein the requesting client assesses the speeds of connections to more than one address in the proxy list, records and compares the measured speeds, and downloads the requested data from the address with the fastest connection.

9. The method of Claim 6, wherein the requesting client sets a target connection speed and downloads the requested data from the first address in the proxy list to meet that target.

10. The method of Claim 3, wherein the requesting client maintains a look-up table correlating items of data with the addresses of proxy server clients that are caching that data.

11. The method of Claim 10, wherein proxy server clients report changes in their cache status to the requesting client.

12. The method of Claim 10, wherein the requesting client updates the look-up table by assessing connection speeds to the proxy server client addresses in the table and discarding or demoting the addresses of proxy server clients to which connections are relatively slow.

13. The method of Claim 12, wherein the addresses in the table are pinged and their response times are compared with each other or with a target threshold.

14. The method of Claim 1, wherein the requesting client stores the address of the proxy server client that provided the requested data, and assembles an address list of the proxy server clients most commonly accessed to obtain the requested data.

15. The method of Claim 1, wherein the data request cascades through levels of a tree or chain client structure to a proxy server client whose address is not on the proxy list held by the requesting client.

16. The method of Claim 15, wherein the requesting client checks that the speed of the connection to the proxy server client meets a target connection speed before downloading the requested data from that proxy server client.

17. The method of Claim 16, wherein the requesting client assesses the speed of the connection by pinging the proxy server client and comparing the measured connection speed with the target connection speed.

18. The method of Claim 1, wherein proxy server clients maintain a workload limit and do not serve requests that would exceed that workload limit.

19. The method of Claim 1, wherein the requesting client monitors the workload of proxy server clients and does not contact proxy server clients whose workload is above a workload limit.

20. A client-server communications network comprising:
 a server; and
 a plurality of clients, each client including a local cache storing data downloaded via the network, wherein a requesting client includes means for broadcasting a data request over the network to the server and/or one or more other clients or for connecting to at least one client whose address is on a proxy list held by the requesting client, and includes means for downloading the requested data across the network from the cache of a proxy server client that is caching the requested data.

21. The network of Claim 20, wherein the network comprises the Internet, the clients comprise user terminals running web browsers and the respective local caches are associated with the browsers on the user terminals.

22. The network of Claim 20, wherein the requesting client includes selection means for choosing from a plurality of proxy server clients the proxy server client from which it will download the requested data.

23. The network of Claim 22, wherein the selection means selects from a proxy list containing the respective addresses of the plurality of proxy server clients and optionally also containing the address of the server.

24. The network of Claim 23, wherein the selection means comprises bandwidth assessment means for measuring the speed of connection to an address in the proxy list.

25. The network of Claim 24, wherein the bandwidth assessment means includes means for pinging an address taken from the proxy list.

26. The network of Claim 24, wherein the bandwidth assessment means includes means for recording speeds of connections to addresses on the proxy list, means for comparing the recorded speeds, and means for downloading the requested data from the address with the fastest recorded speed.

27. The network of Claim 24, wherein the selection means includes means for comparing a measured connection speed to an address with a target connection speed and downloading the requested data from that address if the measured connection speed meets the target connection speed.

28. The network of Claim 20, wherein the requesting client stores a look-up table correlating items of data with the addresses of proxy server clients that are caching that data.

29. The network of Claim 28, wherein proxy server clients include means for reporting changes in their cache status to the requesting client.

30. The network of Claim 28, wherein the requesting client includes means for updating the look-up table, the requesting client including means for assessing connection speeds to the proxy server client addresses in the table and means for discarding or demoting the addresses of proxy server clients to which connections are relatively slow.

31. The network of Claim 30, wherein the requesting client includes means for ping-
ping addresses in the table, means for recording their response times, and means for
comparing the recorded response times with each other or with a target threshold.

32. The network of Claim 20, wherein the requesting client includes timeout
means responsive to failure by the server to respond within a predetermined target period,
and means responsive to the timeout means to broadcast a data request over the network to at
least one other client or to connect to at least one proxy server client whose address is on an
auxiliary proxy list held by the requesting client.

33. The network of Claim 32, wherein the proxy server clients are in a tree or
chain structure comprising a plurality of levels.

34. The network of Claim 20, wherein a proxy server client includes workload
limit means that prevents the proxy server client serving requests that would exceed a
workload limit.

35. The network of Claim 20, wherein the server includes workload limit means that prevents referral of the requesting client to proxy server clients whose workload is above a workload limit.

36. The network of Claim 20, wherein the server includes means for responding to a client that sends a data request to the server.

37. The network of Claim 36, wherein the server includes workload limit means that prevents referral of the requesting client to proxy server clients whose workload is above a workload limit.

38. A client terminal for connection to a server, or a browser for such a client terminal, comprising:

selection means for choosing between a plurality of proxy server clients the proxy server client from which it will download the requested data; and

means for downloading the requested data from a chosen proxy server client.

39. The terminal or browser of Claim 38, wherein the selection means selects from a proxy list containing the respective addresses of the plurality of proxy server clients and optionally also containing the address of the server.

40. The terminal or browser of Claim 39, wherein the selection means comprises bandwidth assessment means for measuring the speed of connection to an address in the proxy list.

41. The terminal or browser of Claim 40, wherein the bandwidth assessment means includes means for pinging an address taken from the proxy list.

42. The terminal or browser of Claim 40, wherein the bandwidth assessment means includes means for recording speeds of connections to addresses on the proxy list, means for comparing the recorded speeds, and means for downloading the requested data from the address with the fastest recorded speed.

43. The terminal or browser of Claim 39, wherein the selection means includes means for comparing a measured connection speed to an address with a target connection speed and downloading the requested data from that address if the measured connection speed meets the target connection speed.

44. The terminal or browser of Claim 39, further comprising means for storing a look-up table correlating items of data with the addresses of proxy server clients that are caching that data.

45. The terminal or browser of Claim 44, including means for reporting changes in their cache status to a requesting client.

46. The terminal or browser of Claim 44, further comprising means for updating the look-up table, means for assessing connection speeds to the proxy server client addresses in the table, and means for discarding or demoting the addresses of proxy server clients to which connections are relatively slow.

47. The terminal or browser of Claim 46, further comprising means for pinging addresses in the table, means for recording their response times, and means for comparing the recorded response times with each other or with a target threshold.

48. The terminal or browser of Claim 39, further comprising timeout means responsive to failure by the server to respond within a predetermined target period, and means responsive to the timeout means to broadcast a data request over the network to at least one other client or to connect to at least one proxy server client whose address is on an auxiliary proxy list held by the requesting client.

49. The terminal or browser of Claim 39, further comprising workload limit means that prevents the terminal serving requests that would exceed a workload limit.

50. A software plug-in for a client terminal or for a browser loaded on that client terminal and being programmed to adapt the terminal or the browser to perform method steps comprising:

choosing between a plurality of proxy server clients a proxy server client from which it will download requested data;

downloading the requested data from a chosen proxy server client; and

selecting from a proxy list containing the respective addresses of the plurality of proxy server clients and optionally also containing the address of a server.